

**SAFETY DATA SHEET**

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**1. SUBSTANCE AND SOURCE IDENTIFICATION**

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**Product Identifier**

**SRM Number:** 2445  
**SRM Name:** Mercury in Iodized Activated Carbon  
**Other Means of Identification:** Not applicable.

**Recommended Use of This Material and Restrictions of Use**

This Standard Reference Material (SRM) is intended for use in the evaluation of chemical methods of analysis for mercury in halogenated activated carbon sorbents. A unit of SRM 2445 consists of 25 g of iodinated activated carbon ground to pass a 250 µm (60 mesh) sieve, homogenized, and packaged in an amber glass bottle.

**Company Information**

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**2. HAZARDS IDENTIFICATION**

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**Note:** This material is intended for laboratory use only. SRM 2445 is supplied in a small quantity and under normal laboratory conditions, it does not constitute a combustible dust hazard. The physical properties of this material indicate that accumulated dust on surfaces, may lead to combustible dust concentrations in air.

**Classification**

**Physical Hazard:** Not classified.  
**Health Hazard:** Not classified.

**Label Elements**

**Symbol:** No Symbol/No Pictogram.  
**Signal Word:** No signal word.  
**Hazard Statement(s):** Not applicable.  
**Precautionary Statement(s):** Not applicable.  
**Hazards Not Otherwise Classified:** Not applicable.  
**Ingredients(s) with Unknown Acute Toxicity:** Not applicable.

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**3. COMPOSITION AND INFORMATION ON HAZARDOUS INGREDIENTS**

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**Substance:** Carbon (activated)

**Other Designations:** Fine carbon (iodinated activated carbon)

Components are listed in compliance with OSHA's 29 CFR 1910.1200; for the actual values see the NIST Certificate of Analysis.

Component(s)	CAS Number	EC Number (EINECS)	Nominal Mass Concentration (%)
Carbon	7440-44-0	231-153-3	95
Potassium Iodide	7681-11-0	231-659-4	5

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## 4. FIRST AID MEASURES

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### Description of First Aid Measures:

**Inhalation:** If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. Get immediate medical attention.

**Skin Contact:** Wash skin with soap and water for at least 15 minutes. If necessary, seek medical attention.

**Eye Contact:** Flush eyes with water for at least 15 minutes. If necessary, seek medical attention.

**Ingestion:** If a large amount is swallowed, get medical attention.

**Most Important Symptoms/Effects, Acute and Delayed:** Generated dust may cause mechanical irritation.

**Indication of any immediate medical attention and special treatment needed, if necessary:** If any of the above symptoms are present, seek medical attention if needed.

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## 5. FIRE FIGHTING MEASURES

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**Fire and Explosion Hazards:** Slight fire hazard. Dust/air mixtures may ignite or explode. Avoid generating dust. See Section 9, “Physical and Chemical Properties” for flammability properties.

### Extinguishing Media

Suitable: Regular dry chemical, carbon dioxide, water, regular foam.

Unsuitable: None listed.

**Specific Hazards Arising from the Chemical:** Not applicable.

**Special Protective Equipment and Precautions for Fire-Fighters:** Move container from fire area if it can be done without personal risk. Avoid inhalation of material or combustion by-products. Wear full protective clothing and NIOSH-approved self-contained breathing apparatus (SCBA).

**NFPA Ratings** (0 = Minimal; 1 = Slight; 2 = Moderate; 3 = Serious; 4 = Severe)

Health = 1

Fire = 1

Reactivity = 1

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## 6. ACCIDENTAL RELEASE MEASURES

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**Personal Precautions, Protective Equipment and Emergency Procedures:** Any accumulated material on surfaces should be removed and properly disposed of. Use suitable protective equipment; see Section 8, “Exposure Controls and Personal Protection”.

**Methods and Materials for Containment and Clean up:** Collect spilled material in appropriate container for disposal. Avoid generating dust.

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## 7. HANDLING AND STORAGE

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**Safe Handling Precautions:** Use suitable personal protection equipment (PPE). See Section 8, “Exposure Controls and Personal Protection”.

**Storage and Incompatible Materials:** Store and handle in accordance with all current regulations and standards. Keep separated from incompatible substances (see Section 10, “Stability and Reactivity”).

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## 8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

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Exposure Limits			
Components	OSHA (PEL)	ACGIH (TLV)	NIOSH (REL)
Carbon <sup>(a)</sup>	TWA: 15 mg/m <sup>3</sup> (total particulates) TWA: 5 mg/m <sup>3</sup> (respirable particulates)	no occupational limits established.	TWA: 5 mg/m <sup>3</sup> (respirable particulates) TWA: 10 mg/m <sup>3</sup> (total particulates)
Potassium Iodide	no occupational limits established.	TWA: 0.01 ppm (inhalable fraction and vapor, related to Iodides)	no occupational limits established.

<sup>(a)</sup> No occupational exposure limits have been established for activated carbon. This material is a particulate matter and adequate inhalation/respiratory protection should be used to minimize exposure. The exposure limits for Particulates Not Otherwise Regulated (PNOR) are applicable.

**Engineering Controls:** Provide local exhaust or process enclosure ventilation system. Ensure compliance with applicable exposure limits.

**Personal Protection Measures:** In accordance with OSHA 29 CFR 1910.132, subpart I, wear appropriate PPE to minimize exposure to this material.

**Respiratory Protection:** If workplace conditions warrant a respirator, a respiratory protection program that meets OSHA 29CFR 1910.134 must be followed. Refer to NIOSH 42 CFR 84 for applicable certified respirators.

**Eye/Face Protection:** Eye and face protection is required when dust is generated. Wear splash resistant safety goggles. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

**Skin and Body Protection:** Standard PPE is recommended to avoid irritation.

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

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Descriptive Properties	Carbon (activated)
Appearance (physical state, color, etc.)	black amorphous powder
Molecular Formula	not applicable
Molar Mass (g/mol)	not applicable
Odor	odorless
Odor threshold	not available
pH	not available
Evaporation rate	not available
Melting point/freezing point	3550 °C to 3697 °C (6422 °F to 6687 °F)
Density	0.04 g/mL to 0.7 g/mL
Vapor Pressure	<0.1 mmHg at 20 °C
Vapor Density (air = 1)	0.4
Viscosity	not available
Solubilities	insoluble in water, acids, and alkali
Partition coefficient (n-octanol/water)	not available
Particle Size	<250 µm (60 mesh)
Thermal Stability Properties	
Autoignition Temperature	450 °C (842 °F)
Thermal Decomposition	not available
Initial boiling point and boiling range	4200 °C (7592 °F)
Explosive Limits, LEL (Volume %)	not available
Explosive Limits, UEL	0.14 g/L
Flash Point	slightly flammable
Flammability (solid, gas)	not applicable

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## 10. STABILITY AND REACTIVITY

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**Reactivity:** Stable at normal temperatures and pressure.

**Stability:**   X   Stable        Unstable

**Possible Hazardous Reactions:** Large amounts of activated carbon, especially when wet, may deplete oxygen from surrounding air. This may cause a dangerously low oxygen level in confined or enclosed spaces. Use appropriate confined space entry precautions and monitor oxygen levels.

**Conditions to Avoid:** Avoid heat, flames, sparks and other sources of ignition. Avoid generating dust. Avoid moisture, and incompatible materials.

**Incompatible Materials:** Metals, oxidizing materials, halogens, combustible materials, peroxides, acids, reducing agents.

**Hazardous Decomposition:** Oxides of carbon and potassium iodide.

**Hazardous Polymerization:**        Will Occur   X   Will Not Occur

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## 11. TOXICOLOGICAL INFORMATION

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**Route of Exposure:**   X   Inhalation   X   Skin   X   Ingestion

**Symptoms Related to the Physical, Chemical and Toxicological Characteristics:** Generated dust may cause mechanical irritation.

### Potential Health Effects (Acute, Chronic, and Delayed)

**Inhalation:** Inhalation of dust may cause irritation. Repeated or prolonged exposure may cause irritation, weight loss, weakness, pulmonary edema, decreased pulmonary function, and eventual lung damage.

**Skin Contact:** Skin exposure may result in mechanical irritation.

**Eye Contact:** Direct contact may cause mechanical irritation.

**Ingestion:** Ingestion of this material is unlikely under normal conditions of use. Ingestion of large amounts may cause gastrointestinal irritation with nausea, vomiting, and stomach pain.

### Numerical Measures of Toxicity

**Acute Toxicity:** Not classified.

Carbon: Rat, Oral LD50: >10 000 mg/kg

Potassium Iodide: No data available.

**Skin Corrosion/Irritation:** Not classified; no data available.

**Serious Eye Damage/Eye Irritation:** Not classified.

Carbon: No data available.

Potassium Iodide: Rat, 500 mg/kg

**Respiratory Sensitization:** Not classified; no data available.

**Skin Sensitization:** Not classified; no data available.

**Germ Cell Mutagenicity:** Not classified; no data available.

**Carcinogenicity:** Not classified.

**Listed as a Carcinogen/Potential Carcinogen**            Yes   X   No

Carbon and potassium iodide are not listed by IARC, NTP, or OSHA as carcinogens/potential carcinogens.

**Reproductive Toxicity:** Not classified.

Carbon: Rat Subcutaneous TDLo: 167 mg/kg (pregnant 8 d)

Potassium iodide: Rat Oral TDLo: 822 mg/kg (2 weeks, prior to copulation 2 weeks, 13 d continuous);

Woman Oral TDLo: 2700 mg/kg (pregnant 1 to 39 weeks)

**Specific Target Organ Toxicity, Single Exposure:** Not classified; no data available.

**Specific Target Organ Toxicity, Repeated Exposure:** Not classified; no data available.

**Aspiration Hazard:** Not applicable.

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## 12. ECOLOGICAL INFORMATION

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**Ecotoxicity Data:** No data available.

**Persistence and Degradability:** No data available.

**Bioaccumulative Potential:** No data available.

**Mobility in Soil:** No data available.

**Other Adverse effects:** No data available.

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## 13. DISPOSAL CONSIDERATIONS

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**Waste Disposal:** Dispose of waste in accordance with all applicable federal, state, and local regulations. U.S. EPA 40 CFR 262 Hazardous waste number(s): D001 for carbon.

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## 14. TRANSPORTATION INFORMATION

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**U.S. DOT and IATA:** This material is not regulated by DOT or IATA. Special Provision A3 applies.

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## 15. REGULATORY INFORMATION

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### U.S. Regulations

CERCLA Sections 102a/103 (40 CFR 302.4): Not regulated.

SARA Title III Section 302 (40 CFR 355.30): Not regulated.

SARA Title III Section 304 (40 CFR 355.40): Not regulated.

SARA Title III Section 313 (40 CFR 372.65): Not regulated.

OSHA Process Safety (29 CFR 1910.119): Not regulated.

SARA Title III Sections 311/312 Hazardous Categories (40 CFR 370.21)

ACUTE HEALTH: No

CHRONIC HEALTH: No

FIRE: No

REACTIVE: No

PRESSURE: No

**State Regulations:** California Proposition 65: Not listed.

**U.S. TSCA Inventory:** Activated carbon and potassium iodide are listed.

**TSCA 12(b), Export Notification:** Not listed.

**Canadian Regulations:** WHMIS Information is not provided for this material.

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## 16. OTHER INFORMATION

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**Issue Date:** 03 November 2015

**Sources:** ChemAdvisor, Inc., SDS *Carbon, Activated*, 20 March 2015.

ChemAdvisor, Inc., SDS Potassium Iodide, 20 March 2015.

Cameron/Great Lakes, Inc., Vendor MSDS *CGL/CCKI ACKI*, 15 January 2014.

CDC; NIOSH; *NIOSH Pocket Guide to Chemical Hazards*; Department of Health and Human Services (DHHS), Centers for Disease Control and Prevention (CDC), National Institute for Safety and Health; *Particulates Not Otherwise Regulated*, 04 April 2011; available at <http://www.cdc.gov/niosh/npg/npgd0480.html> (accessed Nov 2015).

### Key of Acronyms:

ACGIH	American Conference of Governmental Industrial Hygienists	NRC	Nuclear Regulatory Commission
ALI	Annual Limit on Intake	NTP	National Toxicology Program
CAS	Chemical Abstracts Service	OSHA	Occupational Safety and Health Administration
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act	PEL	Permissible Exposure Limit
CFR	Code of Federal Regulations	RCRA	Resource Conservation and Recovery Act
DOT	Department of Transportation	REL	Recommended Exposure Limit
EC50	Effective Concentration, 50 %	RM	Reference Material
EINECS	European Inventory of Existing Commercial Chemical Substances	RQ	Reportable Quantity
EPCRA	Emergency Planning and Community Right-to-Know Act	RTECS	Registry of Toxic Effects of Chemical Substances
IARC	International Agency for Research on Cancer	SARA	Superfund Amendments and Reauthorization Act
IATA	International Air Transportation Association	SCBA	Self-Contained Breathing Apparatus
IDLH	Immediately Dangerous to Life and Health	SRM	Standard Reference Material
LC50	Lethal Concentration, 50 %	STEL	Short Term Exposure Limit
LD50	Lethal Dose, 50 %	TLV	Threshold Limit Value
LEL	Lower Explosive Limit	TPQ	Threshold Planning Quantity
MSDS	Material Safety Data Sheet	TSCA	Toxic Substances Control Act
NFPA	National Fire Protection Association	TWA	Time Weighted Average
NIOSH	National Institute for Occupational Safety and Health	UEL	Upper Explosive Limit
NIST	National Institute of Standards and Technology	WHMIS	Workplace Hazardous Materials Information System

**Disclaimer:** Physical and chemical data contained in this SDS are provided only for use in assessing the hazardous nature of the material. The SDS was prepared carefully, using current references; however, NIST does not certify the data in the SDS. The values for this material are given in the NIST Certificate of Analysis.

Users of this SRM should ensure that the SDS in their possession is current. This can be accomplished by contacting the SRM Program: telephone (301) 975-2200; fax (301) 948-3730; e-mail [srmmsds@nist.gov](mailto:srmmsds@nist.gov); or via the Internet at <http://www.nist.gov/srm>.